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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,247	12/06/2001	William Shieh	0030-0008	4526
26615	7590	11/18/2004	EXAMINER	
HARRITY & SNYDER, LLP 11240 WAPLES MILL ROAD SUITE 300 FAIRFAX, VA 22030			PHAN, HANH	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,247

Applicant(s)

SHIEH, WILLIAM

Examiner

Hanh Phan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/12/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 20, 24, 25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al (US Patent No. 5,778,117).

Regarding claims 1, 20, 24, 25 and 29, referring to Figures 8 and 17, Inoue teaches in an optical communication system comprising at least two optical fibers, a method of locating faults, the method comprising:

supplying an optical test signal (i.e., optical test signal λ_0 , Fig. 17) to a first optical fiber (i.e., first optical fiber 6f, Fig. 17) wherein the optical test signal (λ_0) propagates on the first optical fiber (6f) in a first direction;

providing a coupling device (i.e., coupling device 214, Fig. 17) to optically couple the first optical fiber (6f) to a second optical fiber (6b')(Fig. 17);

receiving the optical test signal (λ_0) on the second optical fiber (6b') via the coupling device (214), wherein the optical test signal (λ_0) propagates on the second optical fiber (6b') in the first direction, reaches a termination point (350) on the second optical fiber (6b') and reflects back on the second optical fiber in a second direction opposite to the first direction; and

analyzing (i.e., receiving unit 313 of the OTDR 310 is installed in place of the optical signal receiving unit 111, Fig. 17) the reflected signal received on the second optical fiber (col. 2, lines 65-67 and col. 3, lines 1-7 and col. 12, lines 35-63).

Regarding claim 2, Inoue further teaches determining whether any faults exist on at least one of the first and second optical fibers based on the analyzing (Fig. 17, col. 2, lines 65-67 and col. 3, lines 1-7).

Regarding claim 3, Inoue further teaches the analyzing includes analyzing the reflected test signal using an optical time domain reflectometer (Fig. 17, col. 2, lines 65-67 and col. 3, lines 1-7 and col. 12, lines 35-63).

Regarding claim 4, Inoue further teaches the receiving the optical test signal on the second optical fiber includes: receiving a portion of light associated with the optical test signal via the coupling device (Fig. 17).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-12, 17, 18 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US Patent No. 5,778,117).

Regarding claims 9, 17 and 31, Inoue teaches all the aspects of the claimed invention as set forth in the rejection claim 1 above except fails to teach at least one optical isolator disposed along the first communication path, the at least one optical isolator being configured to permit propagation of light in a first direction and substantially prevent propagation of light in a second direction opposite to the first direction. However, Figure 14 of Inoue teaches at least one optical isolator disposed along the first communication path, the at least one optical isolator being configured to permit propagation of light in a first direction and substantially prevent propagation of light in a second direction opposite to the first direction. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the Figure 14 of Inoue in the system of Figure 17 of Inoue. One of ordinary skill in the art would have been motivated to do this since Figure 14 of Inoue suggests that using such one optical isolator disposed along the first communication path has advantage of allowing ensuring uni-directional propagation of the light signal.

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Regarding claim 10, Inoue further teaches an analyzing tool configured to analyze the reflected signal received on the second optical fiber (Fig. 17, col. 2, lines 65-67 and col. 3, lines 1-7).

Regarding claims 11 and 18, Inoue further teaches wherein the analyzing tool comprises an optical time domain reflectometer (Fig. 17, col. 2, lines 65-67 and col. 3, lines 1-7 and col. 12, lines 35-63).

Regarding claim 12, Inoue further teaches an optical time domain reflectometer configured to: transmit the test signal on the first optical fiber, and analyze the reflected light on the second optical fiber (Fig. 17, col. 2, lines 65-67 and col. 3, lines 1-7 and col. 12, lines 35-63).

6. Claims 5-8, 13-16, 19, 26, 27, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US Patent No. 5,778,117) in view of Lutz et al (US Patent No. 6,414,787).

Regarding claims 5, 13, 15, 19, 26, 27 and 32, Inoue differs from claims 5, 13, 15, 19, 26, 27 and 32 in that he fails to teach a gain shape compensation filter disposed on the first optical fiber and coupled to the at least one optical isolator. However, Lutz teaches a gain shape compensation filter disposed on the optical fiber and coupled to the at least one optical isolator (Figs. 2, 11 and 12, col. 6, lines 36-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the gain shape compensation filter as taught by Lutz in the system of Inoue. One of ordinary skill in the art would have been motivated to do this since Lutz

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suggests in column 6, lines 36-67 that using such a gain shape compensation filter has advantage of allowing providing an optical amplifier having its gain flattened and maintaining a high gain.

Regarding claim 6, the combination of Inoue and Lutz further teaches transmitting the optical test signal through a plurality of repeater devices located upstream of the filtering device (Fig. 10 of Inoue and Fig. 2 of Lutz).

Regarding claim 7, the combination of Inoue and Lutz further teaches the filtering device comprises a gain shape compensation filter (Fig. 2 of Lutz).

Regarding claim 8, the combination of Inoue and Lutz further teaches connecting the coupling device to the first optical fiber at a location upstream of the filtering device and at least one isolator (Fig. 14 of Inoue and Fig. 2 of Lutz).

Regarding claim 14, the combination of Inoue and Lutz teaches a plurality of repeaters disposed on the first communication path at a location upstream of the at least one optical isolator, the repeaters being configured to amplify the test signal (Fig. 17 of Inoue).

Regarding claims 16 and 30, the combination of Inoue and Lutz teaches a photodetector disposed on the first communication path; and a pump source optically coupled to the first optical fiber at a location downstream from the photodetector, the pump source being configured to propagate energy to the first optical fiber in the second direction, whereby the energy is prevented from propagating to the photodetector by the at least one isolator (Figs. 2, 11 and 12 of Lutz).

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7. Claims 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US Patent No. 5,778,117) in view of Spirit et al (US Patent No. 5,298,965).

Regarding claims 21 and 28, Inoue differs from claims 21 and 28 in that he fails to teach each repeater configured to amplify the first test signal using Raman amplification techniques. However, Spirit teaches amplifying the first test signal using Raman amplification techniques (Fig. 1, col. 2, lines 35-67 and col. 3, lines 1-23). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the amplifying the first test signal using Raman amplification techniques as taught by Spirit in the system of Inoue. One of ordinary skill in the art would have been motivated to do this since Spirit suggests in column 2, lines 35-67 and col. 3, lines 1-23 that using such amplifying the first test signal using Raman amplification techniques have advantage of allowing amplifying the test signal and increasing the optical measurement range in OTDR.

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US Patent No. 5,778,117) in view of Spirit et al (US Patent No. 5,298,965) and further in view of Lutz et al (US Patent No. 6,414,787).

Regarding claim 22, Inoue modified by Spirit teaches all the aspects of the claimed invention except fails to teach a gain shape compensation filter disposed on the first optical fiber and coupled to the at least one optical isolator. However, Lutz teaches a gain shape compensation filter disposed on the optical fiber and coupled to the at

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least one optical isolator (Figs. 2, 11 and 12, col. 6, lines 36-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the gain shape compensation filter as taught by Lutz in the system of Inoue modified by Spirit. One of ordinary skill in the art would have been motivated to do this since Lutz suggests in column 6, lines 36-67 that using such a gain shape compensation filter has advantage of allowing providing an optical amplifier having its gain flattened and maintaining a high gain.

Regarding claim 23, the combination of Inoue, Spirit and Lutz teaches the gain shape compensation filter and the first and second isolators are located externally from the plurality of repeaters (Fig. 2 of Spirit).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mock (US Patent No. 5,790,285) discloses lightwave communication monitoring system.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

A handwritten signature in cursive script, appearing to read 'Hanh Phan', is written over a horizontal line.

Hanh Phan

Primary Examiner

11/12/2004